

Claims

What is claimed is:

- 5 1. A device for detecting an actuator assembly parking error in a disc drive (such as 100), wherein the actuator assembly is pivotally attached to a base plate (such as 102) and includes a read/write head for accessing data stored on a rotating data storage disc, and wherein the disc includes a parking zone for parking the read/write head when the disc drive (such as 100) is powered down, the device comprising:
 - 10 a magnetic latch attached to the actuator assembly opposite the read/write head;
 - a latch pin assembly electrically connected to the base plate (such as 102) and positioned to contact the magnetic latch only when the read/write head is positioned over the parking zone; and
 - a detection module electrically connected to the magnetic latch for detecting
 - 15 contact between the magnetic latch and the latch pin assembly when the disc drive (such as 100) is powered on.
2. The device of claim 1 wherein the detection module reports a parking error if there is no contact between the magnetic latch and the latch pin assembly when the disc drive (such as
- 20 100) is powered on.
3. The device of claim 2 wherein the detection module stores a running total number of parking errors.
4. The device of claim 1 wherein the detection module prevents rotation of the disc
- 25 if there is no contact between the magnetic latch and the latch pin assembly when the disc drive (such as 100) is powered on.
5. The device of claim 1 further including a resistor electrically connected to the
- 30 magnetic latch and the detection module.

6. The device of claim 5 wherein the resistor measures approximately 4.7 kohms.

7. The device of claim 1 wherein the parking zone is a circumferential area located about an inner diameter of the disc.

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8. The device of claim 1 wherein the parking zone is a circumferential area located about an outer diameter of the disc.

9. The device of claim 8 further including a ramp attached to the base plate (such as 102) adjacent to the outer diameter of the disc for parking the read/write head.

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10. The device of claim 1 wherein the latch pin assembly comprises a pin extending upward from the base plate (such as 102) and a latch cylinder positioned on the pin, and wherein the magnetic latch contacts the latch cylinder when the read/write head is positioned over the parking zone.

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11. The device of claim 10 wherein the magnetic latch comprises a latch body and a latch plate, wherein the latch plate includes a contact surface made of magnetically permeable material that contacts the latch cylinder when the read/write head is positioned over the parking zone.

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12. The device of claim 11 wherein the latch cylinder includes a circular peripheral groove that forms a gap in the cylindrical surface of the latch cylinder, and wherein the contact surface of the magnetic latch spans the gap when the read/write head is positioned over the parking zone.

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13. The device of claim 1 wherein the actuator assembly further includes a voice coil motor comprising:

a bottom pole plate attached to the base plate (such as 102);

a top pole plate attached to the bottom pole plate; and

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a coil attached to the actuator assembly and positioned between the top pole plate and the bottom pole plate, wherein the latch pin assembly is attached to the bottom pole plate and the top pole plate.

5 14. The device of claim 1 wherein the magnetic latch comprises a latch body and a latch plate, wherein the latch plate includes a contact surface made of magnetically permeable material.

10 15. The device of claim 14 wherein the latch body and latch plate comprise a non-magnetically permeable material.

16. A method for detecting an actuator assembly parking error in a disc drive (such as 100), wherein the actuator assembly is pivotally attached to a base plate (such as 102) and includes a read/write head for accessing data stored on a rotating data storage disc, and the disc includes a parking zone for parking the read/write head when the disc drive (such as 100) is
5 powered down, the method comprising the steps of:

- (a) powering on the disc drive (such as 100);
- (b) determining whether a magnetic latch attached to an end of the actuator assembly opposite the read/write head has electrical contact with a latch pin assembly electrically connected to the base plate (such as 102), wherein the magnetic latch contacts the latch pin
10 assembly only when the read/write head is positioned over the parking zone; and
- (c) reporting a parking error if there is no contact between the magnetic latch and the latch pin assembly.

17. The method of claim 16 further comprising:

- (e) preventing the disc from rotating if [see above] the magnetic latch does not
15 have electrical contact with the latch pin assembly.

18. The method of claim 17 further comprising:

- (f) allowing the user to override step (e) after the parking error has been
20 reported in step (d).

19. The method of claim 16 further comprising:

- (e) storing a running total number of parking errors.

20. The method of claim 16 wherein the disc drive (such as 100) includes a
25 processor having a port electrically connected to the latch and the determining step further comprises reading data from the port to determine whether the magnetic latch has electrical contact with the latch pin assembly.

21. A disc drive (such as 100) comprising:
an actuator assembly pivotally attached to a base plate (such as 102);
a read/write head attached to an end of the actuator assembly for accessing data
stored on a rotating data storage disc, wherein the disc includes a parking zone for parking the
5 read/write head when the disc drive (such as 100) is powered down; and
detection means electrically connected to the actuator assembly for detecting
whether the read/write head is parked in the parking zone when the disc drive (such as 100) is
powered on.
- 10 22. The device of claim 21 wherein the detection means further comprises:
a magnetic latch attached to the actuator assembly opposite the read/write head;
a latch pin assembly electrically connected to the base plate (such as 102) and
positioned to contact the magnetic latch only when the read/write head is positioned over the
parking zone; and
15 a detection module electrically connected to the magnetic latch for detecting
contact between the magnetic latch and the latch pin assembly when the disc drive (such as 100)
is powered on.